



T1230-600W

SNUBBERLESS TRIAC

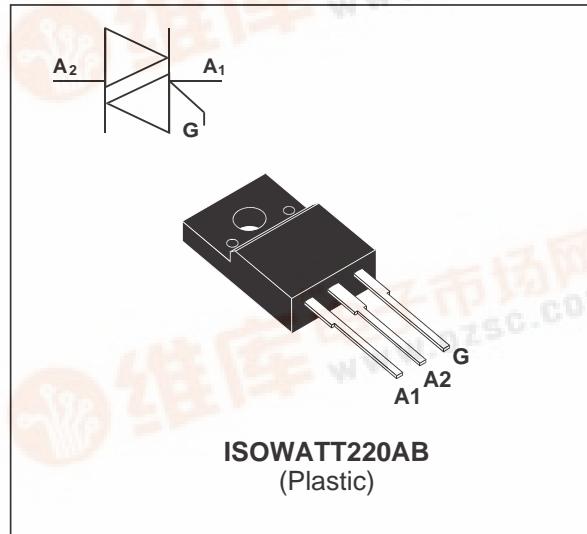
FEATURES

- $I_{TRMS} = 12 \text{ A}$
- $V_{DRM} = V_{RRM} = 600\text{V}$
- EXCELLENT SWITCHING PERFORMANCES
- INSULATING VOLTAGE = $1500\text{V}_{(\text{RMS})}$
- U.L. RECOGNIZED : E81734

DESCRIPTION

The T1230-600W triac use high performance glass passivated chip technology, housed in a fully molded plastic ISOWATT220AB package.

The SNUBBERLESS™ concept offers suppression of R-C network, and is suitable for applications such as phase control and static switch on inductive and resistive loads.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
I_{TRMS}	RMS on-state current (360° conduction angle)	12	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 16.7 \text{ ms}$ (1 cycle, 60 Hz)	132
		$t_p = 10 \text{ ms}$ (1/2 cycle, 50 Hz)	155
I^2t	I^2t Value (half-cycle, 50 Hz)	120	A^2s
dI/dt	Critical rate of rise of on-state current Gate supply : $I_G = 500 \text{ mA}$ $dI_G/dt = 1 \text{ A}/\mu\text{s}$.	Repetitive $F = 50 \text{ Hz}$	$\text{A}/\mu\text{s}$
		Non Repetitive	100
T_{stg} T_j	Storage temperature range Operating junction temperature range	- 40 to + 150 - 40 to + 125	$^\circ\text{C}$
T_l	Maximum lead temperature for soldering during 10s at 4.5 mm from case	260	$^\circ\text{C}$

Symbol	Parameter	Value	Unit
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ\text{C}$	600	V

T1230-600W

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-a)}	Junction to ambient	50	°C/W
R _{th(j-c)}	Junction to case for A.C (360° conduction angle)	2.8	°C/W

GATE CHARACTERISTICS (maximum values)

P_{G(AV)}= 1 W P_{GM} = 10 W (tp = 20 μs) I_{GM} = 4 A (tp = 20 μs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrant		Value	Unit
I _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	I-II-III	MAX	30 mA
V _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	I-II-III	MAX	1.5 V
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ	T _j = 125°C	I-II-III	MIN	0.2 V
t _{gt}	V _D =V _{DRM} I _G = 500mA dI _G /dt= 3A/μs	T _j = 25°C	I-II-III	TYP	2 μs
I _H *	I _T = 100mA Gate open	T _j = 25°C		MAX	50
V _{TM} *	I _{TM} = 17A tp= 380μs	T _j = 25°C		MAX	1.5 V
I _{DRM} I _{RRM}	V _{DRM} rated V _{RRM} rated	T _j = 25°C		MAX	10 μA
		T _j = 125°C		MAX	2 mA
dV/dt *	Linear slope up to V _D =67%V _{DRM} Gate open	T _j = 125°C		MIN	300 V/μs
(dV/dt)c *	(dI/dt)c =6.5 A/ms (see note)	T _j = 125°C		MIN	20 V/μs

* For either polarity of electrode A2 voltage with reference to electrode A1.

Note : In usual applications where (dI/dt)c is below 6.5 A/ms, the (dV/dt)c is always lower than 10V/μs, and, therefore, it is unnecessary to use a snubber R-C network across T1220W / T1230W triacs.

Fig. 1: Maximum power dissipation versus RMS on-state current.

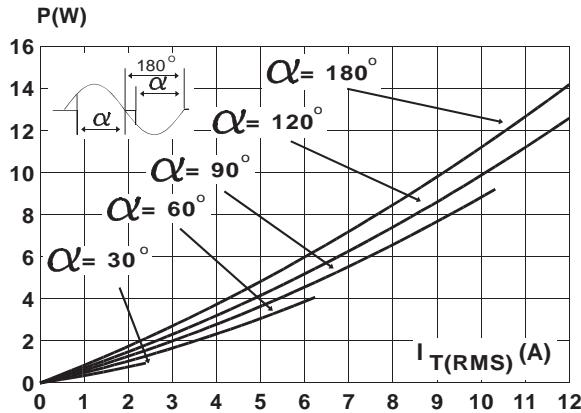


Fig. 3: RMS on-state current versus case temperature.

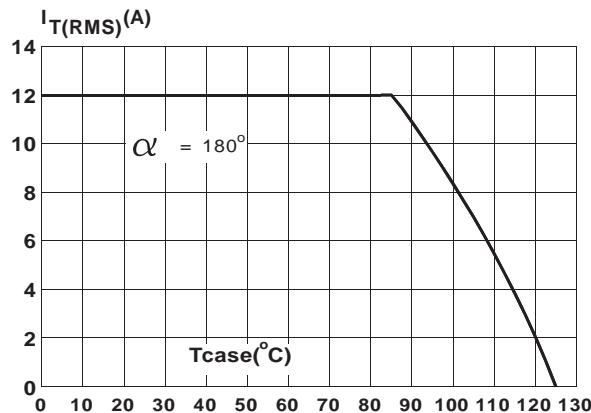


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

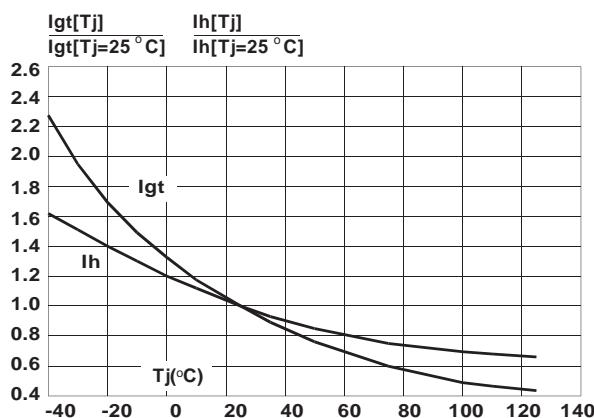


Fig. 2: Correlation between maximum power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

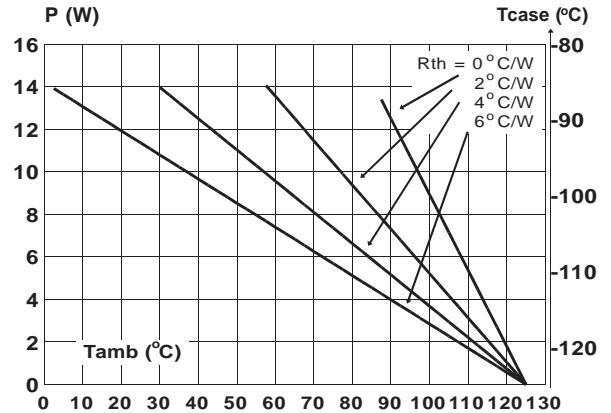


Fig. 4: Thermal transient impedance junction to case and junction to ambient versus pulse duration.

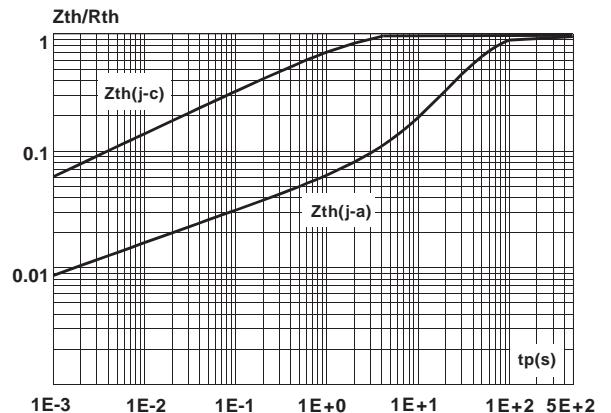
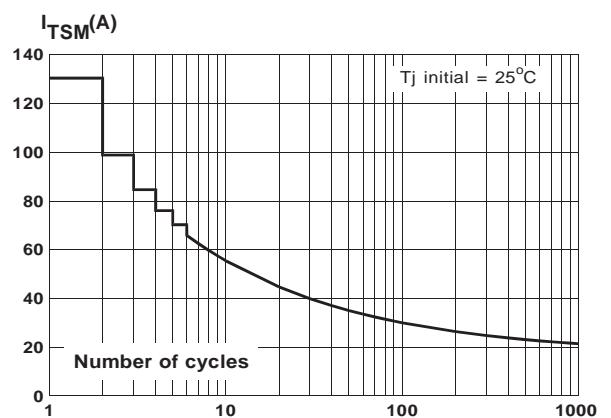


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.



T1230-600W

Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t_p \geq 10\text{ms}$, and corresponding value of I^2t .

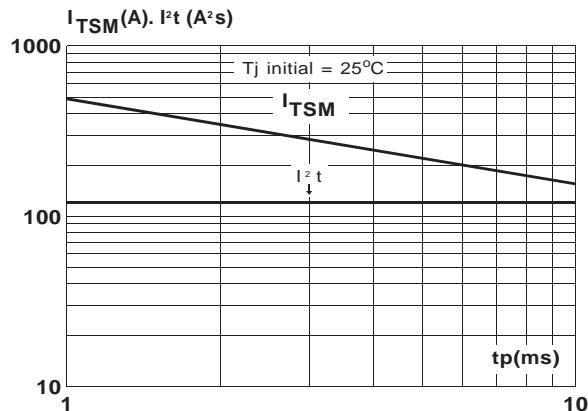
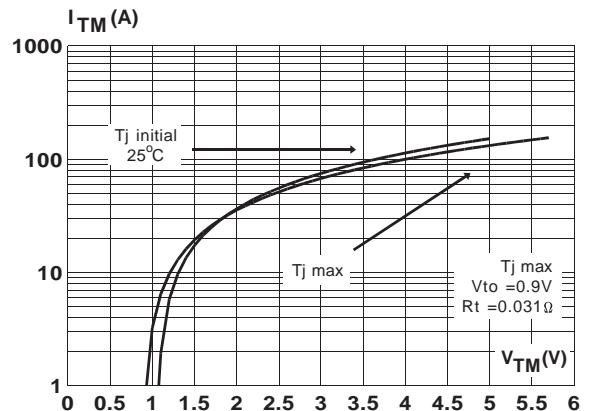
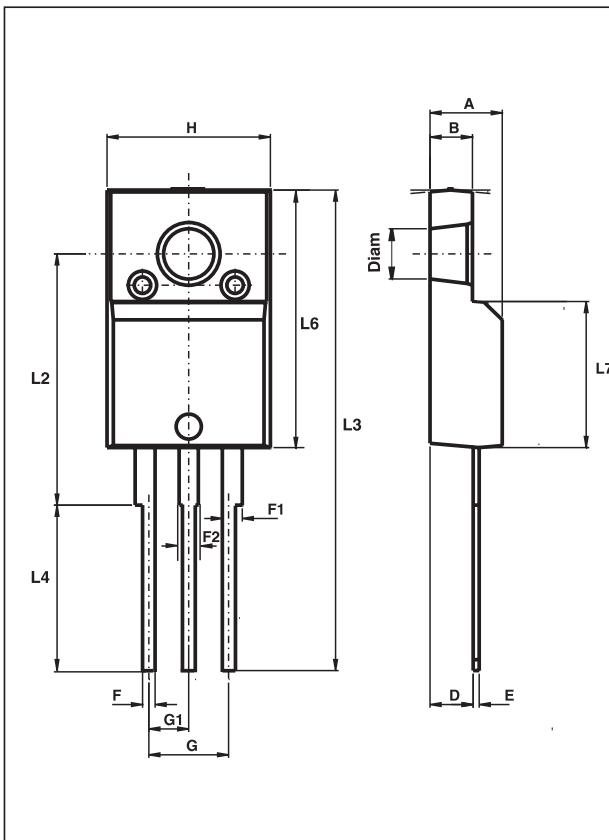


Fig. 8: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA
 ISOWATT220AB



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
B	2.50	2.70	0.098	0.106
D	2.50	2.75	0.098	0.108
E	0.40	0.70	0.016	0.028
F	0.75	1.00	0.030	0.039
F1	1.15	1.70	0.045	0.067
F2	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.205
G1	2.40	2.70	0.094	0.106
H	10.00	10.40	0.394	0.409
L2	16.00 typ.		0.630 typ.	
L3	28.60	30.60	1.125	1.205
L4	9.80	10.60	0.386	0.417
L6	15.90	16.40	0.626	0.646
L7	9.00	9.30	0.354	0.366
Diam	3.00	3.20	0.118	0.126

- Cooling method : C
- Marking : Type number
- Weight : 2.1g
- Recommended torque value : 0.55 m.N.
- Maximum torque value : 0.70 m.N.

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied.
STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 2001 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia
Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>